non-ready state after the recording medium is loaded by the loading means, in the case where the detecting means has not detected the external request within the predetermined time period.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate presently preferred embodiments of the invention, and together with the general description given above and the detailed description of the preferred embodiments given below, serve to explain the principles of the invention.

FIG. **1** shows the structure of an optical disk apparatus according to a first embodiment of the present invention;

FIG. **2** is a flow chart illustrating the operation of the apparatus according to the first embodiment of the invention; and

FIG. **3** is a flow chart illustrating the operation of an optical disk apparatus according to a second embodiment of the invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Preferred embodiments of the present invention will now be described with reference to the accompanying drawings.

FIGS. **1** and **2** show a first embodiment of the invention. FIG. **1** shows the structure of an optical disk apparatus according to a first embodiment of the present invention, and FIG. **2** is a flow chart illustrating the operation of the apparatus according to the first embodiment of the invention.

In the first embodiment, an optical disk is employed as a recording medium in the optical disk apparatus.

As shown in FIG. **1**, an optical disk apparatus **1** includes a holder **3** for holding an optical disk **2** contained in a cartridge, etc. The optical disk **2** is inserted in the holder **3**, and, in this state, the disk **2** can be conveyed within the apparatus **1**. A holder insertion detector **4** functioning as medium insertion detecting means is provided at an innermost portion of the holder **3**. The holder insertion detector **4** detects whether or not the optical disk **2** has been inserted in the holder **3**.

The holder **3** is connected to a loading motor unit **5**, and the holder **3** is attached to and detached from a spindle motor unit **7** according to a command from a controller **6**. The optical disk **2** inserted in the holder **3** is mounted on the spindle motor unit **7** functioning as medium driving means, and thereby the disk **2** is rotated according to a command from the controller **6**.

A spindle mounting detector **8** functioning as driving means mounting detector means is provided near the spindle motor unit **7**. The detector **8** detects whether or not the disk **2** within the holder **3** is mounted on the spindle motor unit **7**. The holder insertion detector **4** and spindle mounting detector **8** are connected to the controller **6**. The controller **6** monitors the insertion of the optical disk **2** in the holder **3** and the mounting of the disk **2** on the spindle motor unit **7**. The respective parts are controlled in accordance with the state of the disk **2**.

The optical disk apparatus **1** is provided with a pickup unit **9**, and a seek for a target point on the disk **2** and recording/reproduction are controlled by the controller **6**.

Furthermore, the apparatus **1** is provided with an eject/load switch (SW) **10** for effecting ejection of the optical disk **2** (the disk **2** is removed from the spindle motor and exposed to the outside so that it can be taken out) or effecting load (the disk **2** is received into the apparatus and mounted on the spindle motor). By operating the eject/load SW **10**, an eject/load request is sent to the controller **6** and the eject/load operation is performed in accordance with the mounting state of the optical disk **2**.

The holder insertion detector **4** may be provided near the inlet of the holder **3**, as indicated by a broken line **4'** in FIG. **1**. By such holder insertion detector **4'**, the insertion/non-insertion of even a portion of the disk **2** can be detected.

The controller **6** is connected to a host computer, for example, via a SCSI interface. According to a command from the host computer, recording/reproduction, etc. is effected. The controller **6** includes a timer unit **11** for counting a time period during which the optical disk **2** is inserted in the holder **3** and situated in the eject position. The timer unit **11** detects whether the optical disk **2** is in the eject position continuously for a predetermined time period.

Next, the operation of the optical disk apparatus according to the first embodiment will now be described.

If the optical disk **2** is inserted in the holder **3**, the holder insertion detector **4** is turned on, and an insertion detection signal INSERT to be output to the controller **6** is changed from 0 to 1.

When the insertion detector **4** is turned on, i.e. when the insertion detection signal INSERT is set at 1, the controller **6** controls the loading motor unit **5** and the loading operation is effected to move the holder **3** in the loading direction until the spindle mounting detector **8** is turned on, i.e. until the optical disk **2** is mounted on the spindle motor unit **7**.

When the optical disk **2** has been mounted on the spindle motor unit **7**, the controller **6** performs a starting operation and controls the spindle motor unit **7**. Thus, the spindle motor is driven and a laser (not shown) within the pickup unit **9** is turned on. In addition, an actuator (not shown) within the pickup unit **9** is controlled to carry out the focusing servo operation and tracking servo operation, thus setting the optical disk apparatus **1** in the ready state in which information on the disk **2** can be reproduced, recorded or erased.

Subsequently, the controller **6** performs reproduction, recording, erasure, etc. of information according to a command from the host computer (not shown).

The eject/load SW **10** is a switch by means of which the user requests loading or ejection of the optical disk **2**. When the SW **10** is depressed (i.e. a request signal REQ output to the controller **6** is changed from 0 to 1), the loading/eject is effected in accordance with the insertion state of the optical disk **2** and the position of the holder **3**.

When the eject/load SW **10** is depressed in the state in which the optical disk **2** is mounted on the spindle motor unit **7**, the controller **6** comes into the halt state and controls the pickup unit **9** to halt the tracking servo and focusing servo. At the same time, the laser is turned off, and the spindle motor unit **7** is controlled to stop the spindle motor.

Thereafter, the controller **6** controls the loading motor unit **5**, and the spindle mounting detector **8** is turned off. Thus, the eject operation is carried out such that the holder **3** is moved in the unload direction until the optical disk **2** is situated in the eject position of the optical disk apparatus **1** (i.e. the position where the disk **2** can be inserted and removed).

On the other hand, when the eject/load SW **10** is depressed in the state in which the optical disk **2** is inserted